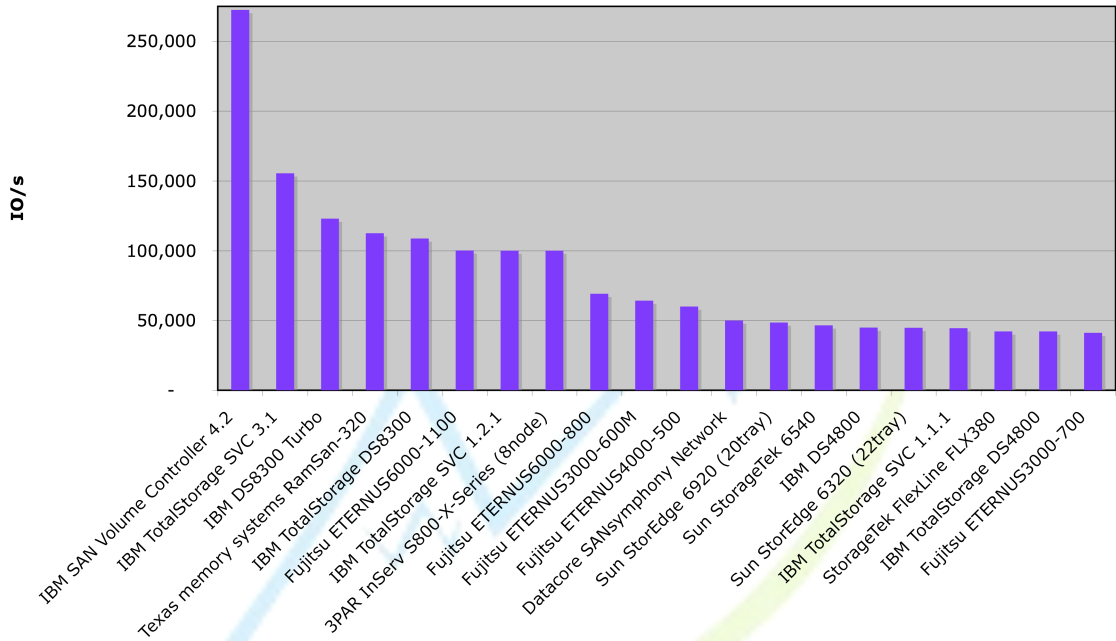


As an ongoing commitment to maintain SCI StorInt™ briefings and presentations we periodically update storage and NFS performance charts. We use this StorInt™ Dispatch to publish these results for general readers.

SPC-1 IOPS™ results

SPC-1* IOPS™ performance as of 31 July 2007 - top 20

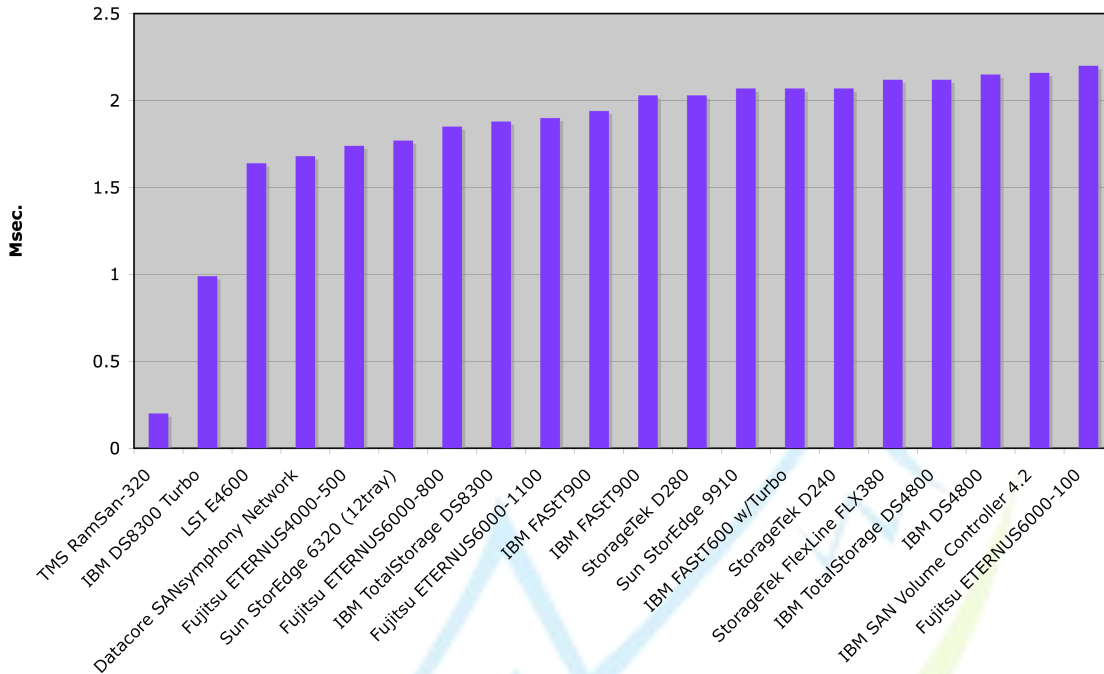


It's clear from the IO operations/sec (IOPS™) results above¹ that SVC can sustain some heavy aggregate workloads. What's surprising though is the IBM DS8300 Turbo performance, first beating Texas Memory RamSan which is essentially a RAM disk, and second placing above all the rest of the single subsystem configurations – very impressive.

¹ SPC-1 and SPC-2 performance data from www.storageperformance.org as of 31 July 2007

SPC-1 LRT™ results

SPC-1* LRT™ avg. resp. time as of 31 July 2007 - top 20

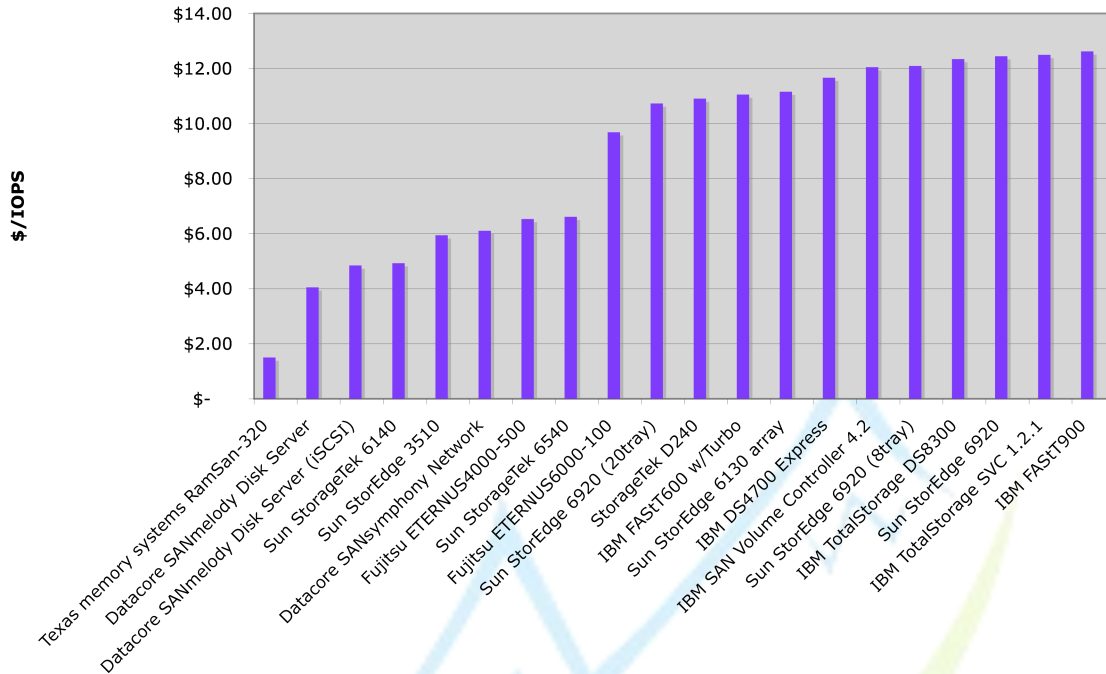


Once again the surprise here is the performance of the DS8300 turbo. Although aggregate IO/sec (see above) is typically correlated to subsystem sophistication, great Least response (LRT™) time is typically a result of less sophistication (less work to do) and raw horsepower. Due to these reasons the best LRT™ performance typically falls to mid-range systems.

Again it is reasonable for TMS RamSan to place well here as it is a RAM disk although it takes a good deal of smart code and horsepower to serve up a random 512 byte block under 200 microseconds. LSI's 3rd place and Datacore's 4th place are more easily explainable as mid-range subsystems with the right code and right horsepower to do LRT™ well.

SPC-1 \$/IOPS™

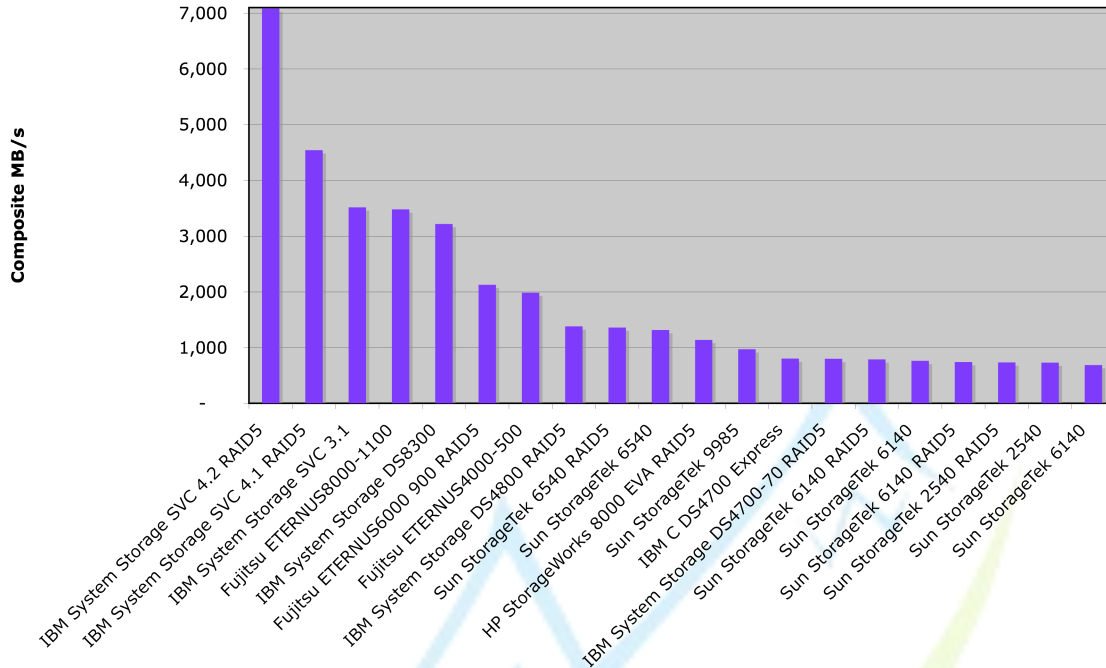
SPC-1 \$/IOPS(TM) as of 31 July 2007, Top 20



What's surprising here is RamSan's 1st place finish. RAM disks are generally very expensive. The remaining top 5 are all mid-range systems that would typically fare well in a cost per performance comparison.

SPC-2 MBPS results

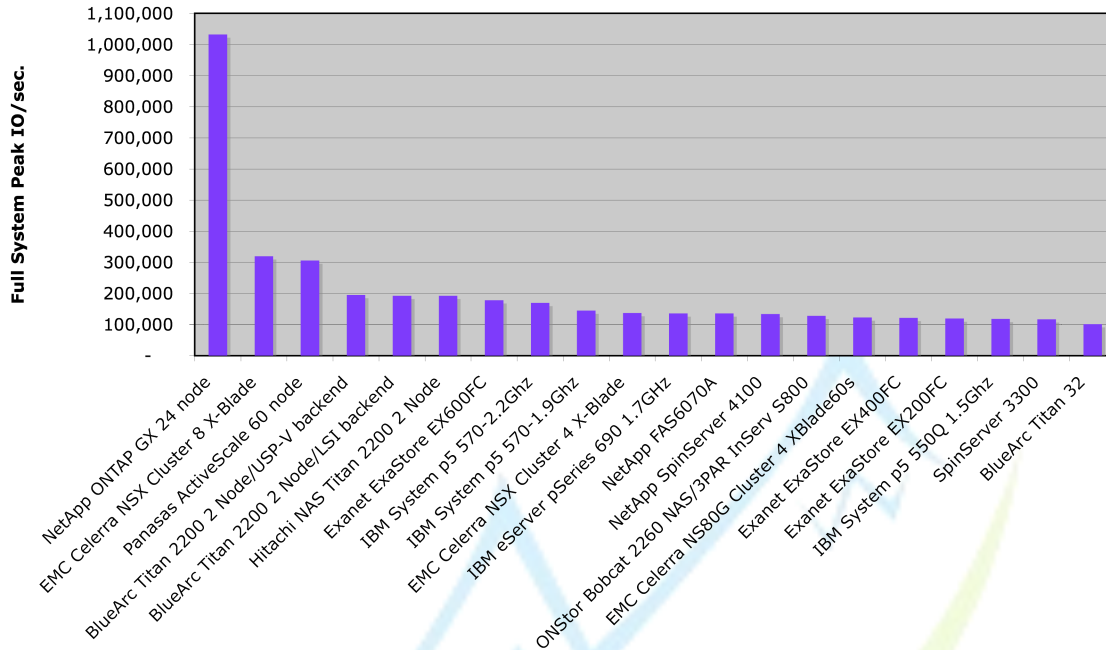
SPC-2* MBPS™ Performance data as of 31Jul07, Top 20



Where no RAID type is listed the product was configured as RAID1. What's surprising here is the good MB/sec (MBPS™) showing of RAID5 subsystems. It's not apparent from the chart but this benchmark consists of mostly sequential read so there is little RAID5 parity write penalty. A key lesson is that for sequential read RAID4, 5 or 6 will perform just as well as RAID1 at considerably less cost.

SPEC SFS NFS ops/sec un-normalized results

SPEC* SFS97_R1 NFS V3 Full System Performance as of 03 August 2007, TCP results only, Un-normalized performance, Top 20 systems

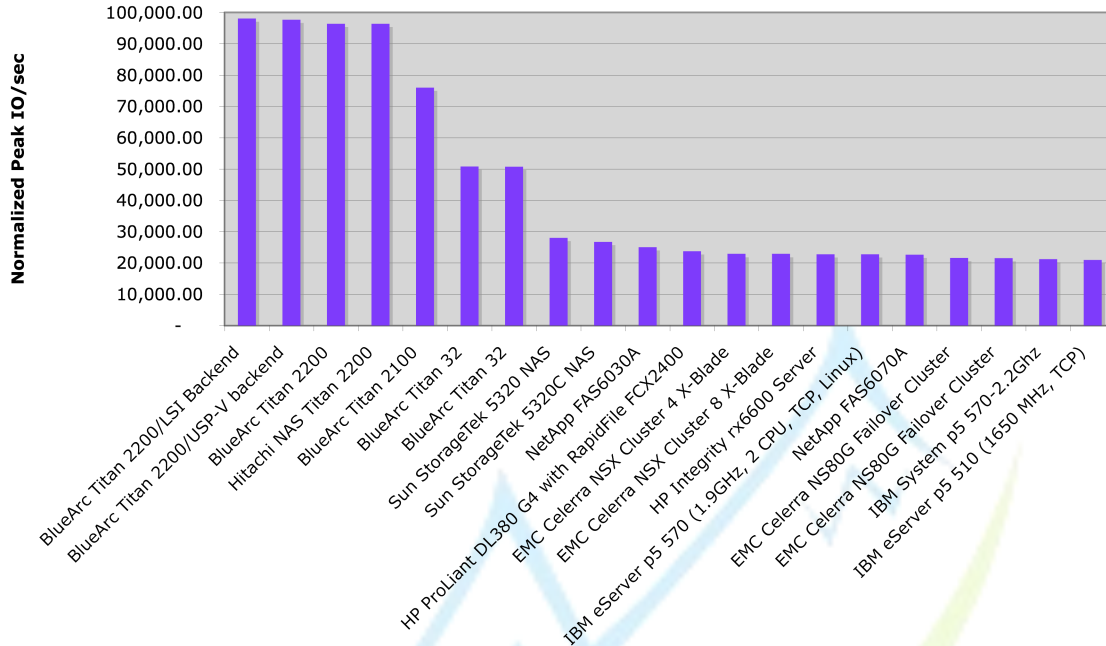


The NFS results² have a clear winner. NetApp GX is their grid-oriented product which incorporated and updated the Spinnaker technology. To attain the over 1 million NFS ops/sec NetApp configured a 24 node with 4 cores each or 96 cores - a lot of horsepower. EMC Celerra took a similar tack using an 8-blade configuration. Also, Panasas followed the crowd and used 60 nodes for their benchmark. The outlier is BlueArc which has proprietary hardware that allows them to do well with only 2 nodes.

² All SPEC SFS results Copyright © 1995-2007 Standard Performance Evaluation Corporation (SPEC). All rights reserved, permission granted for use, data from <http://www.spec.org> as of 03 August 2007

SPEC SFS NFS ops/sec normalized results

SPEC SFS97_R1 NFS V3 Normalized Results as of 03 August 2007, TCP results only, Normalized by processors (chips or cores), Top 20 overall performers



Here one can see the advantage that BlueArc has with their proprietary hardware. In fact the current and prior generation BlueArc hold the top 7 slots on this cut of NFS performance.

Silverton Consulting, Inc. is a Storage, Strategy & Systems consulting services company, based in Colorado, USA offering products and services to the data storage community